



## IS 739:1992 - Wrought Aluminium and Aluminium Alloy Wire for General Engineering Purposes

Wrought aluminium and aluminium alloy wires are cold drawn products made from aluminium or its alloys, specifically processed for use in general engineering applications. These products are manufactured by cold drawing which is a fabrication procedure whose goal is to decrease the wire's cross-sectional area via pulling through one or more drawing dies at room temperature and subjected to heat treatment to achieve required properties.

This product is widely used as filler rods for inert gas arc welding, brazing & Soldering, Rivet wires for aircrafts & Ship building, Corrosion resistant fasteners manufacturing, Screen wires etc

Good quality Wrought Aluminium and Aluminium Alloy wires shall have adequate **tensile strength & ductility, accurate chemical composition and consistent dimensional accuracy**. It must be **free from defects** and exhibit excellent **corrosion resistance** to ensure the material's performance, durability, and suitability for various applications.

The Indian Standard IS 739:1992 addresses the aforesaid quality parameters in the following ways:

- i) IS 739 includes requirements for **Freedom from Defects**, specifying that wires should be sound and free from harmful defects,
- ii) IS 739 specifies mechanical property requirements like **ductility** of the wire by wrapping test and **tensile strength** which varies based on the alloy designation and heat-treated condition of the wire,
- iii) IS 739 defines specific **chemical composition** limits for each alloy designation, specifying the range of elements like copper, Magnesium, silicon, iron, manganese, Zinc, Titanium and Chromium that provide corrosion resistance in the material,
- iv) The standard prescribes **strict tolerances on diameter** to ensure dimensional consistency,
- v) IS 739 mandates the wire must be **marked** with information such as the **alloy designation, condition of the material, lot number and manufacturer's identification**. This marking helps in traceability and ensures that users can verify compliance with the standards.

By defining above parameters, IS 739:1992 ensures that wrought aluminium and aluminium alloy wires meet quality standards necessary for safe, durable, and reliable use in various engineering applications.